

Rostrum short. Cornicles greatly enlarged in the middle and constricted basally and anteriorly. Anal plate shallowly bi-lobed. Cauda elongate, constricted near base.

Type species: *Israelaphis carmini* new species

*Israelaphis carmini* Essig, n. sp.

(Figure 1)

Body slender; cleared specimen shows no pigmentation; surface rough as in *Cavariella*; spiracles prominent. Length 1.93 mm. Antennae slender, longer than body or 2.6 mm.; unguis 3 times the base; with many small circular secondary sensoria distributed over segments III–V and the base of VI. Rostrum extending just beyond 2nd coxae, apical segment very small. Legs normal with many short hairs. Cornicles greatly enlarged in middle and constricted basally and apically (on the slide one cornicle is not so inflated as the other; the difference may have been caused in mounting). The posterior, dorsal fleshy, pointed and imbricated tubercles are as illustrated (some improvising was necessary in making the drawing); those on each of segments VII and VIII are 4 in number, while there are 2 larger ones on segment IX which extend backwards beyond the cauda. Anal plate bilobed, cauda elongated with wide base and constriction basad of the middle; both with few hairs.

*Holotype*. The single apterous individual mounted on a slide has been designated as the type; it is from WADI MUSSARA, PETAH TIKVALI, ISRAEL, March 9, 1931. The specimen was collected by sweeping various plants with a collecting net.

This unique species has been named for the donor, Dr. Jos. Carmin. The type is in the author's collection.

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## THE WHITE CLOVER FLOWER MIDGE AS DIFFERENTIATED FROM THE RED CLOVER FLOWER MIDGE

(Diptera: Itonididae)

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There are many areas in both Europe and North America where numbers of pink maggots are found commonly in the flowers of red clover. The larvae feed on the ovules, and they are responsible for a substantial loss in the production of red clover seed.

Midge larvae are also known to feed on the ovaries of white clover, and they have been regarded as representing the same species that attacks red clover.

However, Margot Metcalfe (1933) found that the red clover flower midge bred in all of the varieties of red clover in her experimental plots in England, but none of the interspersed plots of white varieties served as hosts. Moreover, L. G. Gentner (personal

communication), working with a Ladino clover flower midge in Oregon, observed that none of the volunteer red clover plants were attacked in the presence of infested Ladino clover.

Because of these discrepancies, a taxonomic study of the clover flower midges was undertaken. Adults of midges reared from red clover were found to be morphologically distinct from adults reared from Ladino clover, and they are here regarded as representing two different species.

Specimens in the E. P. Felt collection that were reared from red and white clover were examined by courtesy of D. L. Collins of the New York State Museum. Alan Stone and E. A. Chapin kindly loaned for study all of the clover midge material in the U. S. National Museum.

L. G. Gentner submitted the specimens that were reared by G. W. Bishop from clover in Oregon, E. C. Klostermeyer furnished specimens from clover in the State of Washington, and H. F. Barnes supplied midges reared from clover in England.

DASINEURA LEGUMINICOLA (Lintner)<sup>1</sup>

Red Clover Flower Midge

*Cecidomyia trifolii* Lintner, 1879 (not Loew, 1874), Canad. Ent., 11:44. Described from larvae taken from flowers of red clover in New York. Primary homonym.

*Cecidomyia leguminicola* Lintner, 1879, Canad. Ent., 11:121. New name for *C. trifolii* Lintner (not Loew).

*Dasyneura leguminicola*, Aldrich, 1905, Smithsonian Misc. Coll., 46:155; Felt, 1911, Jour. Econ. Ent., 4:473; Felt, 1915, Bull. N. Y. State Mus., 589:172; Metcalfe, 1933, Ann. Appl. Biol., 20:187.

*Dasyneura ?leguminicola*, 1933, Felt, 1908, Bull. N. Y. State Mus., 124:349, 350.

*Cecidomyia flosculorum* Kieffer, 1890, Verh. zool.-bot. Ges. Wien, 40:200. Described from specimens reared from florets of *Trifolium medium*, in Germany. **New synonymy.**

*Perrisia flosculorum*, Kieffer, 1913, Gen. Insect., 152:76.

*Dasyneura flosculorum*, Metcalfe, 1933, Ann. Appl. Biol., 20:186; Barnes, 1946, Gall Midges Econ. Imp., 2:35.

The most distinctive characteristic of *Dasineura leguminicola* is the morphological structure of the male genitalia. The proximal roots of the basiforceps end separately in a broad, well developed but lightly sclerotized apodeme of the phallic structures. The tenth

<sup>1</sup> Rondani consistently used the spelling *Dasineura*, and the original spelling is retained in this article. Most subsequent workers have accepted the emendation *Dasyneura*. However, the action of the International Commission of Zoological Nomenclature in the case of *Flebotomus* Rondani vs. the emendation *Phlebotomus* suggests that emendations of this type should be submitted to the Commission for approval. The entire question of emendations is to be reconsidered at the forthcoming meetings in Copenhagen.

sternite (ventral plate) is deeply emarginate, the distal one-half being divided (fig. 1) in some specimens, but it is more shallowly emarginate in others.

Wehrle (1924), in a study of the variation of the number of antennal segments among individuals of the red clover flower midge reared in New York, found that the normal flagellum of both sexes varied from 13 to 15 segments, the most common number being 14.

Even when amalgamation forming unusually long flagellar segments is found, the articulation being lost, or else where the distal segment may appear to be subdivided, there is often a question as to what segments are to be counted as integral units.

*Dasineura flosculorum* Kieffer is here regarded as a synonym of *D. leguminicola*. Kieffer apparently regarded his species to be distinct because the affected florets of Zigzag clover were abnormal on close inspection. His description of infested florets, however, agrees with descriptions of close examinations of similarly infested red clover florets in North America. Both Metcalfe (1933) and Barnes (1946) have regarded *D. flosculorum* to be almost certainly identical with *D. leguminicola*, and it appears best to suppress the name.

Metcalfe (1933) crossed North America midges from red clover with English specimens from red clover to prove that the two represented the same species.

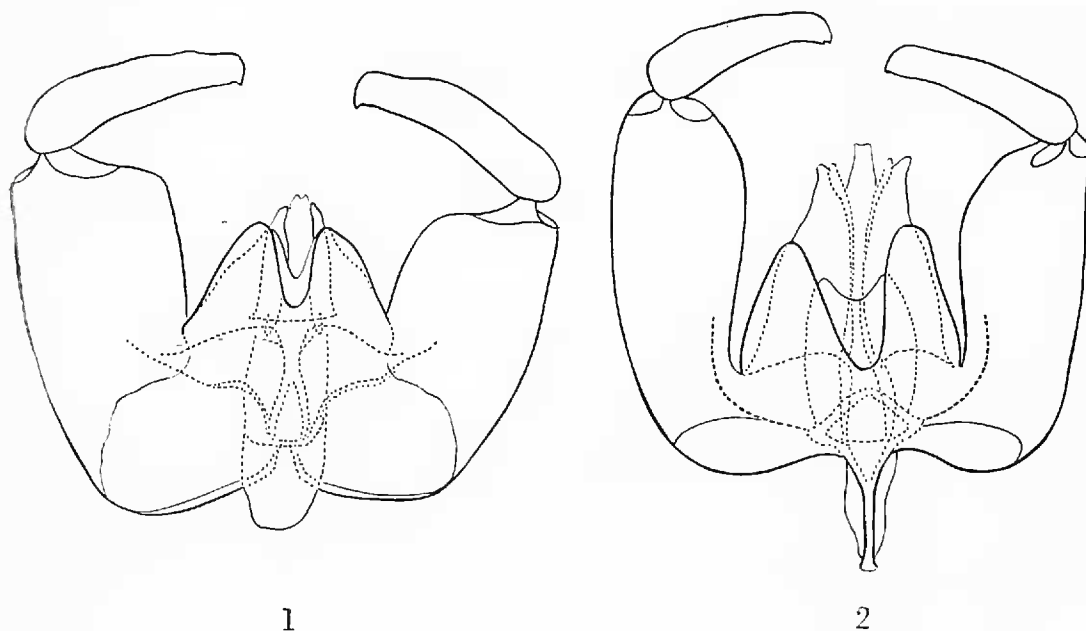


Fig. 1. *Dasineura leguminicola* (Lintner), male genitalia. Fig. 2. *D. gentneri*, n. sp.

*Dasineura gentneri* Pritchard, new species

## White Clover Flower Midge

Adults of *Dasineura gentneri* closely resemble those of *D. leguminicola*, but the roots of the male basiforceps unite to form a strong, slender apodeme associated with a narrow, weakly developed sclerotization of the phallic structures. The tenth sternite (ventral plate) of the male genitalia is emarginate only on the distal one-fourth or one-fifth.

*Male*—Palpus with four segments, the first globular, the others successively increasing in length. Antenna with 2+14 segments (the thirteenth segment without a distal stem on one flagellum and the thirteenth and fourteenth segments amalgamated on the other); flagellum with distal stem of fourth segment about equal in length to node, the stems shorter on more proximal segments and somewhat longer on more distal segments. Wings hyaline, clothed with narrow, curved macrochaetae;  $R_5$  reaching costa well before tip of wing. Legs clothed with lanceolate setae; tarsal claw with well-developed proximal tooth. Hypopygium (fig. 2) with tenth tergite (dorsal plate) bifid to form two triangular lobes attaining about three-fourths the length of the basiclaspers; tenth sternite (ventral plate) somewhat shorter than tenth tergite, broadly emarginate on about distal one-fifth; claspettes (the proximoventral, caudally directed projection of each basiforceps) nearly reaching end of basiforceps, rather slender distally and each terminating in two lobes bearing a single sensory seta on each lobe. Basiforceps each with the proximal root uniting with roots of phallic structure to form a slender, strongly sclerotized apodeme, bordered by a narrow, irregular, and thinner sclerotization. Length of wing, 0.85 mm.

*Female*—Similar to male except flagellar segments sessile, the fourth segment about twice as long as broad proximally. Ovipositor with ventral lobes very small, about one-sixth as long as lamellae. Length of wing, 1.5 mm.

*Holotype*—Male, TALENT, OREGON, September 27, 1951 (G. W. Bishop), reared from Ladino clover flower; in the Pritchard collection. *Paratypes*—Five ♂, 10 ♀, Central Point, Oregon, October 24, 1952, (G. W. Bishop) reared from Ladino clover; 2 ♂, 5 ♀, Grant's Pass, Oregon, October 25, 1951 (G. W. Bishop), reared from Ladino clover; 1 ♂, 15 ♀, Madras, Jefferson County, Oregon, September 4–5, 1952 (G. W. Bishop), reared from Ladino or alsike clover; 3 ♂, 10 ♀, Talent, Oregon (G. W. Bishop), reared from Ladino clover; 3 ♂, Grandview, Washington, July 2, 1952 (E. C. Klostermeyer), Ladino clover. One ♂, Albany, New York, July 3, 1906, white clover, (determined by Felt as *D. leguminicola*) was also examined.



The number of flagellar segments in the males studied varies from 12 to 14 segments, but most have 13 segments. The number of flagellar segments in the females examined varies from 11 to 13 segments, with most having 12 segments. It, therefore, appears that the number of flagellar segments in *Dasineura gentneri* tends to be less than in the closely related *D. leguminicola*.

The tenth sternite of the male genitalia appears to vary in having the distal emargination from about one-fifth to one-fourth its length.

This midge is named in honor of L. G. Gentner, because of his keen insight as to the possibility of it representing a misdetermined species.

The only possible record of this species in Europe is that by Metcalfe (1933). She found midge larvae in the florets of wild white clover, but was unable to rear the adults. It is noted that in her other studies she was unable to find any larvae of the red clover flower midge on white clover; and, therefore, it is possible that *Dasineura gentneri* occurs also in England.

Biological studies of *Dasineura gentneri* have been made by G. W. Bishop. His observations, to be published soon, indicate that the biology of this species differs considerably from that of *D. leguminicola*.

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